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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/523,426	01/28/2005	Frank Cornelis Penning	NL 020704	1850

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EXAMINER	
JACKSON, DERICK G	
ART UNIT	PAPER NUMBER
2627	
MAIL DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/523,426	PENNING ET AL.	
	Examiner	Art Unit	
	Derick G. Jackson	2627	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01/28/2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-18* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-18* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *28 January 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Specification

1. The abstract of the disclosure does not commence on a separate sheet in accordance with 37 CFR 1.52(b)(4). A new abstract of the disclosure is required and must be presented on a separate sheet, apart from any other text.

Claim Objections

2. **Claim 13, 14, 15, and 18** is objected to because of the following informalities:

Claim 13 cites the limitation "**40-300 Hz.**" Examiner suggests revising to 40-30 KHz.

Claim 14, 15, and 18 cites the phrase "substantially in the order of about" which is vague. Examiner suggests removing the phrase.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. **Claim 13 and 14** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

A broad range or limitation together with a narrow range or limitation that falls within the broad range or limitation (in the same claim) is considered indefinite, since the resulting claim does not clearly set forth the metes and bounds of the patent protection desired. See MPEP § 2173.05(c). Note the explanation given by the Board of Patent Appeals and Interferences in *Ex parte Wu*, 10 USPQ2d 2031, 2033 (Bd. Pat. App. & Inter. 1989), as to where broad language is followed by "such as" and then narrow language. The Board stated that this can render a claim indefinite by raising a question or doubt as to whether the feature introduced by such language is (a) merely exemplary of the remainder of the claim, and therefore not required, or (b) a required feature of the claims. Note also, for example, the decisions of *Ex parte Steigewald*, 131 USPQ 74 (Bd. App. 1961); *Ex parte Hall*, 83 USPQ 38 (Bd. App. 1948); and *Ex parte Hasche*, 86 USPQ 481 (Bd. App. 1949). In the present instance, claim 13 recites the broad recitation "**first transition frequency is lower than 100 MHz**", and the claim also recites "**lower than 10 MHz, more preferably lower than 5 MHz, and most preferably in the range 1-4 MHz**" which is the narrower statement of the range/limitation. Also, claim 14, recites the broad recitation "**capacitance value in the range of 8-300 nF**", and the claim also recites "**in the order of about 10 nF**" which is the narrower statement of the range/limitation.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. **Claims 1 and 2** are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim et al. (hereinafter "*Kim*"), US Patent No. 6,724,696 B2 in view of Burroughs (hereinafter "*Burroughs*"), US Patent No. 6,657,926 B2.

Regarding **claim 1**, *Kim* discloses an actuator comprising: an actuator base (fig. 4, element 100), a platform (fig. 4, element 107), a plurality of spring wires movably coupling said platform to said actuator base (fig. 4, elements 10, 20, 30, and 40), and wherein one of said spring wires is electrically conductive (col. 4, lines 19-32).

Kim fails to disclose at least one writing coil supported by said platform and at least one of said sprint wires is connected in series with said writing coil such as to effectively act as a conductor for writing coil drive signals.

In the same field of endeavor, *Burroughs* discloses a magneto-optical system read/write pickup comprising a writing coil mounted to the bottom of the objective lens holder (fig. 2, element 108; col. 2, line 21-25). *Kim* teaches actuators are used to control the focusing, tracking, and tilt directions of an objective lens holder mounted on a suspended platform supported by electrically conductive spring wires. *Burroughs* teaches a writing coil mounted to the bottom of an objective lens holder, but fails to teach said lens holder is mounted on a suspended platform. All the component parts, namely the objective lens holder mounted on a suspended platform supported by a plurality of conductive spring

wires as disclosed by *Kim* and the writing coil mounted to the bottom of an objective lens holder as disclosed by *Burroughs,* are known. The only difference is the combination of the "old elements" into a single device by mounting them onto a suspended platform.

Thus, it would have been obvious to one skilled in the art at the time the invention was made to mount the objective lens holder and writing coil as taught by *Burroughs* onto the suspended platform as taught by *Kim* by known methods with no change in their respective functions and the combination of the writing coil mounted to the objective lens holder and the suspended platform would have yielded predictable results of adjusting the objective lens in the focus, tracking, and tilt direction while reading/writing data to the magneto-optical recording medium.

Burroughs implies the writing coil be connected in series through a conductor to receive high-speed switching signals (drive signals) in order to write data to the magneto-optical recording medium (col. 3, lines 8-9, see also col. 4, lines 28-31). *Kim* teaches a device which uses electrically conducting spring wires connected in series with the actuator coils (Fig. 7) to send control signals to the actuator coils from the actuator drivers (Fig. 6). It would have been obvious to one skilled in the art at the time the invention was made to drive the writing coil as taught by *Burroughs* using an electrically conducting spring wire produced in the device of *Kim* to pass write signals from the writing coil driver to the writing coil as implied by *Burroughs*. Using the known technique of sending control

signals through an electrically conducting spring wire to send drive (writing) signals to a writing coil would have been obvious to one of ordinary skill.

Regarding **claim 2**, *Kim* further discloses said actuator has at least one actuator coil supported by said platform (fig. 4, element 122); wherein at least one of said spring wires is electrically conductive and is connected in series with said actuator coil such as to effectively act as conductor for actuator coil drive signals (fig. 7, elements 122, col. 4, lines 10-18).

3. **Claims 3-12 and 16-18** are rejected under 35 U.S.C. 103(a) as being unpatentable over *Kim* and *Burroughs* as applied to claim 1 above, and further in view of Janz (hereinafter "*Janz*"), US Patent No. 6,219,193 B1.

Regarding **claim 3**, *Kim* and *Burroughs* in combination or alone fail to disclose at least one of said spring wires effectively acts as common conductor for writing coil drive signals as well as actuator coil drive signals.

In the same field of endeavor, *Janz* discloses an apparatus which combines actuator drive signals and the write coil drive signals on a set of common conductors (col. 8, lines 64 to col. 9, line 6).

Therefore, it would have been obvious to one skilled in the art at the time the invention was made to modify the combined apparatus of *Kim* and *Burroughs* to use one of said electrically conductive spring wires as a common conductor to send writing coil drive signals as well as actuator coil drive signals, motivation being to reduce the number of conductors and soldering connections (col. 3, lines 37-41).

Regarding **claim 4**, *Kim* further teaches an actuator wherein: a first electrically conductive spring wire is coupled to a first terminal of a focus actuator coil and to a first terminal of a tracking coil (fig. 7, element 44), a third electrically conductive spring wire is coupled to a second terminal of said focus actuator coil (fig. 7, elements 13 and 120), a fourth electrically conductive spring wire is coupled to a second terminal of said tracking actuator coil (fig. 7, elements 23 and 122).

The combination of *Kim* and *Burroughs* teaches said electrically conductive spring wire is connected to said writing coil, therefore it would have been obvious to one skilled in the art to have said first electrically conductive spring wire coupled to a first terminal of said writing coil and to have a second electrically conductive spring wire coupled to a second terminal of said writing coil.

Regarding **claims 5-8,** claims 5 through 8 are variations in electrical connections of the same parts, namely the focus actuator coil, the tracking actuator coil, and the writing coil. All of the component parts are known in *Kim* and *Burroughs*. The only difference is the electrical connections of the focus actuator coil, the tracking actuator coil, and the writing coil by rearranging the "old elements." Thus, it would have been obvious to one having ordinary skill in the art to rearrange the electrical connections of the focus actuator coil, the tracking actuator coil, and the writing coil, since each component can be used in combination without altering its primary operation of adjusting the platform in the

focusing and tracking direction and writing data to the recording medium. In re Japikse, 181 F.2d 1019, 86 USPQ 70 (CCPA 1950).

Regarding **claim 9**, *Burroughs* further teaches a filter (fig. 4, element 206) comprising: an input coupled to said at least one common conductor (fig. 4, element 202); at least one first output coupled to said at least one actuator coil (fig. 4, element 208); a least one second output coupled to said at least one writing coil (fig. 4, element 212); wherein said filter is adapted to substantially pass relatively low-frequency signals to said first output and to substantially pass relatively high-frequency signals to said second output (col. 7, lines 66 to col.8, line 3).

Regarding **claim 10**, *Burroughs* discloses said relatively low-frequency signals and said relatively high-frequency signals but fails to provide a frequency range of about 10 kHz and 100 MHz for each signal, respectively. The Examiner takes Official Notice that relatively low-frequency signals is in the range of about 30 kHz to about 300 kHz and high-frequency signals are in the range of about 3 MHz to about 30 MHz is old and well known in the art. Therefore, it would have been obvious to one skilled in the art at the time the invention was made to have recognized the relatively low-frequency range and relatively high-frequency range as disclosed by *Burroughs* is within the frequency range claimed by the applicant.

Regarding **claim 11**, *Burroughs* further teaches said filter comprises a filter capacitor (fig. 4, element 246), connected to in series between a first input terminal (fig. 4, element 202) and a first terminal of the second output (fig. 4,

element 212), and wherein a first terminal of the first output (fig. 4 element 208) is preferably connected to said first input terminal (fig. 4, element 202).

Regarding **claim 12**, *Burroughs* teaches said filter characteristics are chosen to pass relatively low-frequency control signals to the actuator (fig. 4, element 140) while removing relatively high-frequency signals meant for the write element (fig. 4, element 138). Thus, it is implicit that a first resonant frequency (transition frequency) will essentially occur when the parallel combination of the filter capacitance (fig. 4, element 246) and the inductance of the actuator (fig. 4, element 244) effectively cancel each other and a second resonant frequency will occur when the inductance value of the actuator (fig. 4, element 244) and the parasitic capacitance of the actuator (fig. 4, element 240) in parallel effectively cancel each other. Furthermore, it is required that said first resonant frequency is lower than said second resonant frequency for the filter (fig. 4, element 206) to properly filter out the relatively high-frequency signals and pass the relatively low-frequency control signals to the actuator.

Regarding **claim 16**, the combination of *Kim* and *Burroughs* further teaches a magneto optical recording apparatus comprising: receiving means for receiving and rotating a magneto-optically recordable disc (see *Kim,* col. 1, lines 23-33); controllable optical means for directing a controlled laser beam to a portion of the disc (see *Burroughs,* fig. 2, col. 2, lines 36-38); controllable magnetizing means for applying controlled magnetic field to an area of the disc (fig. 2, element 108, col. 2, lines 40-45); and an actuator according to claim 1 are met by the combination of *Kim, Burroughs, and Janz* as above.

Regarding **claim 17**, *Janz* further discloses a filter (fig. 3, element 206) suitable for mounting on a movable platform (fig. 3, element 110) comprising: an input (fig. 4, element 202, 204); at least one first output for coupling to an actuator coil (fig. 4, element 208); the filter being suitable for receiving actuator coil drive signals as well as writing coil drive signals at its input (fig. 4, element 216), for separating said signals from each other (col. 7, line 66 to col. 8, line 16), and for outputting said actuator coil drive signals at said first output (col. 7, lines 37-54) and for outputting said writing coil drive signals at said second output (fig. 4, element 212).

Regarding **claim 18**, *Janz* further discloses said filter comprising: a filter capacitor (fig. 4, element 246), connected in series between a first input terminal (fig. 4, element 202) and a first terminal of the second output (fig. 4, element 212); the filter preferably having a first terminal of the first output connected to said first input terminal (fig. 4, element 208).

Janz does not disclose said filter capacitor preferably having a capacitance value substantially in the order of about 10 nF.

However, *Janz* teaches the filter capacitor parameters are chosen appropriately to so as to remove low-frequency components of the superimposed control and write signals and pass substantially only the high frequency write signals to the write element (col. 7, line 66 to col. 8, line 3). Finding an optimal value for the capacitor depends on the inductance of the actuator coils and the operating frequency of the control and write signal which can be obtained

through well known methods and routine experimentation. In re Aller, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955).

Allowable Subject Matter

4. Claims 13 - 15 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

The prior art of record considered alone or in combination fails to teach or suggest the actuator coil as claimed comprising the particular limitation "*wherein said actuator coil has an inductive value substantially in the order of about 50 μH; and wherein said at least one writing coil has a capacitive impedance substantially in the order of about 0.32 pF parallel to an inductive impedance substantially in the order of about 18 nH in series with a resistive impedance substantially in the order of about 2.5 Ω.*"

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Derick G. Jackson whose telephone number is (571) 270-3314. The examiner can normally be reached on Monday through Friday, 7:30 am to 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dwayne Bost can be reached on (571) 272-7023. The

fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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/DGJ/

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1/03/07